

## T400 TACHOMETER

T400 Speed measurement, switching and indicating instruments

### Features

- Converts absolute speed into an analog signal
- Including 2 limits (A/B) with programmable hysteresis
- One changeover relay assigned via binary input to limit (A or B)
- T411 and T412 models with display
- Isolated signal input with automatic trigger level adjustment
- Built in isolated sensor supply with sensor monitoring
- Open collector output of sensor frequency
- Accuracy class 0.05% for limits and 0.5% for analog signals
- Configuration and status via Windows® software
- 5 digit machine factor allowing configuration and display in machine units
- Wide tolerance 10...36 VDC power supply

### The T400 Advantage

- Fast response to over speed conditions
- Germanischer Lloyd's and ABS approval for marine applications
- Digital display of speed value for the models T411 and T412
- 0/4...20 mA or 0/2...10 V analog output with rising or falling characteristics
- Adaptive trigger provides high noise immunity e.g. with electromagnetic sensors
- Digital input for direct treatment of frequency signals
- 2 possible relay configuration sets e.g. for start-up bridging, controlled via binary inputs
- Pluggable terminals
- Integrated 2 or 3 wire sensor monitoring and system watchdog

## T400 TACHOMETER

### One channel tachometer family T400

<b>Type and part numbers</b>	T401.00	4...20mA output	383Z-05307
	T402.00	2...10 V output	383Z-05308
	T411.00	display; 4...20 mA output	383Z-05318
	T412.00	display; 2...10 V output	383Z-05319
	T401.03	5 VDC sensor supply; 4...20 mA output	383Z-05671
	T402.03	5 VDC sensor supply; 2...10 V output	383Z-05672
	T411.03	display; 5 VDC sensor supply; 4...20 mA output	383Z-05595
	T412.03	display; 5 VDC sensor supply; 2...10 V output	383Z-05596
<b>Optional accessories</b>	Power Supply	MINI-PS-100-240AC/24DC/1	383Z-05764
	Interface cable	PC-T400, FT100 RS232 1,5m Kabel	830A-36889

### Technical Data

<b>Measuring range</b>	Lowest: 0...1.000    Highest: 0...35.00 kHz
<b>Measurement time</b>	Configurable min. measurement time (tM): 2/5/10/20/50/100/200/500 ms, 1/2/5 s
<b>Reaction time</b>	Current output:    Typical tM + 7.5 ms    Maximum    Input period + tM + 7.5 ms Relays:    Typical tM + 10.5 ms    Maximum    Input period + tM + 10.5 ms
<b>Accuracy</b>	0.5% referred to the analog output end of range value
<b>Analog output (1)</b>	T401/T411: Current output 0...20 mA resp. 4...20 mA T402/T412: Voltage output 0...10 V resp. 2...10 V Programmable rising or falling transfer function (min. end value 1.00 Hz) Load T401/T411: max. 500 Ohms corresponding to a maximum of 10 V Load T402/T412: min. 7 kOhm corresponding to a maximum of 1.4 mA Maximum open circuit voltage: 12 V Resolution: 12 bit corresponding to 1:4096 Maximum linearity error: 0.1 % Temperature drift: typ. $\pm 100$ ppm/degree K, max. $\pm 300$ ppm/degree K
<b>Set points /relay (2)</b>	Hysteresis: For each limit an upper and a lower set point may be set independently Change over contact: max. 250 VAC, 1250 VA (DC: see operating instructions)
<b>Data I/O</b>	RS232 interface with +5 V-CMOS level 3-pole. 3.5 mm stereo headphone connector on the front side.
<b>Sensor inputs (1)</b>	<b>Input resistance</b> Analog 30 kOhm / Digital 46 kOhm <b>Frequency range</b> 0.01 Hz /35 kHz <b>Trigger level</b> Analog input: Adaptive trigger level from 28 mV to 6.5 V or 250 mV to 6.5 V peak depending on the amplitude of the input signal. Digital input: Digital fixed trigger at 3 V $\pm$ 1.5 V hysteresis
<b>Sensor supply</b>	<b>Standard</b> + 14 V, max. 35 mA, short-circuit proof <b>S5 version</b> + 5 V, max. 35 mA, short-circuit proof
<b>Sensor monitoring</b>	Built-in pull up resistor 820 Ohm for connection of two-wire transmitters or daisy chaining of T400's 3 wire sensors: programmable current consumption limits of 0.5...35mA. Outside the selected range the sensor is signaled as faulty. Electromagnetic sensors: continuity checked. Open circuit signaled as a fault. None: Both sensor monitoring functions may be disabled.
<b>Open collector output (1)</b>	Galvanically separated output of sensor frequency

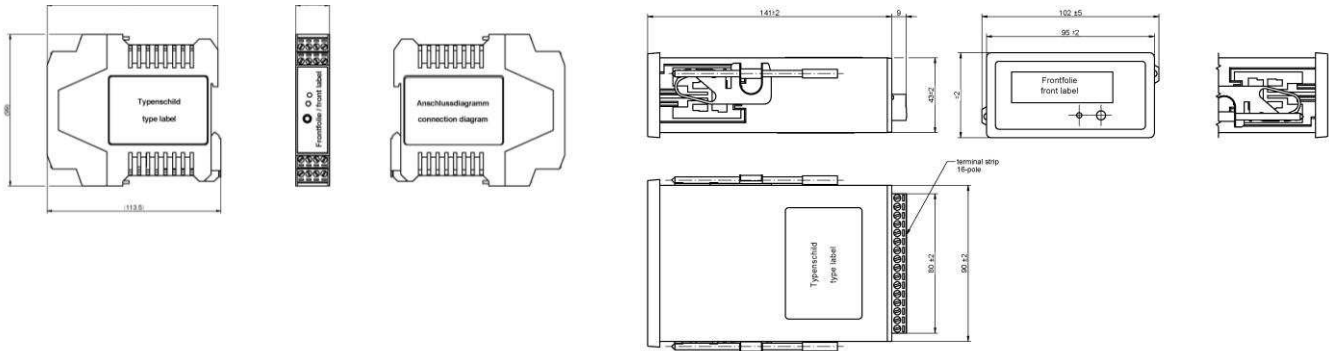
<b>Binary inputs (1)</b>	For external selection between two sets (A/B) of programmable relay control and acknowledge functions: (No external pull up needed) Low active :U < +1.5V                      High (open) :U > +3.5V
<b>Environmental</b>	KUE according to DIN 40 040 Operating temperature: - 40...+85 °C Storage temperature: -40...+90 °C
<b>Power supply</b>	10...36 VDC   power consumption max. 3 W
<b>Insulation</b>	Galvanic separation between power supply, current output and the sensor power supply.    Isolation 700 VDC / 500 VAC. Relay contact isolation: 1500 AC
<b>EMC</b>	Electromagnetic compatibility: Radiation in accordance with international standards and EN 50081-2. Immunity in accordance with international standards and EN 50082-2  Conducted emissions: CISPR 16-1, 16-2                      Radiated emissions: EN 55011 Electrostatic discharge: IEC 61000-4-2                      Electromagnetic fields: IEC 61000-4-3 Conducted fast transients: IEC 61000-4-4                      Conducted slow transients: IEC 61000-4-5 Conducted high frequency: IEC 61000-4-6 Pulse module. elec. field: ENV 50140 Power frequency magnetic field: IEC 1000-4-8
<b>Standards</b>	EN 50155, GL / Germanischer Lloyd, ABS

## T400 TACHOMETER

### Dimensions

T401/402

T411/412



**Rail**

**Housing**

**Terminals**

**Weight**

Rail DIN 46277-3 (EN 50022) or mounting plate to DIN 43660 (41612)

Protection class IP40, terminals IP20

Pluggable

T401/T402: 150 g , T411/T412: 210 g

T400 systems are supplied with a full documentation and the T400 Windows® Software.

The software allows:

- Quick and easy configuration of all operating parameters
- Unit interrogation of identity and parameters
- PC display of current measurement and relay status
- Archiving and printing of the configuration

RS-232 cable not included, see page 2 for optional accessories.

Please note: Information is subject to change. For more technical information please refer to operating instructions.

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Version # 08/2020

